REMARKS/ARGUMENTS

In the Office Action mailed March 21, 2008, claims 1-15 and 17-26 were rejected. In response, Applicants hereby request reconsideration of the application in view of the amendments and the below-provided remarks. Applicants have filed herewith a Request for Continued Examination (RCE). Claim 26 was canceled in Applicants' response filed on May 21, 2008. No claims are added.

For reference, claims 1, 3, and 17 are amended. In particular, each of claims 1 and 17 is amended to recite comparing said first write data with second write data in said writing queue allocated to said first address information to determine if said first write data is different from said second write data, and forwarding said first write data to said writing queue in response to a determination that said first write data is different from said second write data. These amendments are supported, for example, by the subject matter described at page 3, lines 21-25. Claim 3 is amended to simply improve the form of the claim and to add certain punctuation.

Claim Rejections under 35 U.S.C. 103

Claims 1-5, 9-14, 17-20, and 24-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Norman (U.S. Pat. No. 6,438,665, hereinafter Norman) in view of Magro (U.S. Pat. No. 6,151,658, hereinafter Magro). Additionally, claims 6-8 and 21-23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Norman in view of Magro, and further in view of Reams (U.S. Pat. No. 6,438,660, hereinafter Reams). Additionally, claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Norman in view of Magro, and further in view of Sunaga et al. (U.S. Pat. No. 6,785,154, hereinafter Sunaga). However, Applicants respectfully submit that these claims are patentable over Norman, Magro, Reams, and Sunaga for the reasons provided below.

Independent Claim 1

Claim 1 recites "ascertain whether said first address information is stored in said register" and "if yes, compare said first write data with second write data of an earlier write request in said register allocated to said first address information to determine if

said first write data is different from said second write data, and forward said first write data to said register in response to a determination that said first write data is different from said second write data" (emphasis added).

In contrast, the combination of Norman and Magro does not teach all of the limitations of the claim. The Office Action acknowledges Norman does not teach ascertaining whether a first address information is stored in the register and, if yes, comparing the first write data with second write data of an earlier write request in the register, as recited in the claim. Hence, the Office Action relies on Magro as purportedly teaching the indicated limitations. However, Magro also fails to teach the indicated limitations. In particular, Magro does not teach comparing the first write data with second write data of an earlier write request in the register.

Magro is directed to a system with a write buffer to provide random access snooping capability. Magro, abstract. More specifically, Magro describes a random access memory (RAM) 80 with a content addressable memory (CAM) address store 68 and a RAM data store 70. Magro, Fig. 2. A producer provides the address store with an input write address and provides the data store with input write data. The CAM compares the input write address to the addresses in the address store to determine if the input write address is "related" to an address present in the address store. If the input address is related to an address in the address store, then the input write data is stored in the rank of the data store associated with the related address in the address store. Magro, col. 2, lines 20-37.

Magro describes two ways to store the input write data in the data store. For input write data that does not overlap with the data already stored in the rank of the data store, a write merging operation merges the input write data with the existing write data in the data store. Magro, col. 2, lines 37-40. An example of write merging is explained in relation to Fig. 3E, in which the input write data '--52cc' is merged with the existing write data 'a369----' to produce write data 'a36952cc' in the data store. Magro, col. 10, lines 19-23. For input write data that overlaps with the data already stored in the rank of the data store, a write collapse operation overwrites the corresponding write data in the data store using the input write data. Magro, col. 2, lines 40-43; col. 12, lines 34-37. An example of write collapsing is explained in relation to Fig. 4E, in which the input write

data '---52cc' partially overwrites the existing write data 'a36941ff' to produce write data 'a36952cc' in the data store (i.e., the '41ff' portion of the existing write data is overwritten by the input write data '52cc'). Magro, col. 12, lines 16-25.

Although Magro describes write merging and write collapsing to place the input write data in the data store, Magro does not describe comparing the input write data with the existing write data already in the data store. Rather, Magro merely describes using valid bits to indicate whether the existing write data is valid. Magro, col. 12, lines 20-37. In the examples referred to above, the invalid write data designated by dashes '----' would not have the corresponding valid bits set, while the valid write data would have the corresponding valid bits set. However, the valid bits are not used for any type of comparison between the input write data and the existing write data already in the data store. Thus, even if Magro were to describe ascertaining whether an input write address is stored in the address store, Magro nevertheless does not describe comparing the input write data with the existing write data already in the data store.

Moreover, despite the assertions in the Advisory Action mailed June 4, 2008, the write merging and write collapsing described in Magro does not inherently teach comparing the input write data with the existing write data already in the data store. As indicated above, Magro merely indicates using valid bits to designate whether or not the data store includes existing data. While Magro describes two types of writing operations, there is no difference between these two types of writing operations which would support the assertion of an inherent comparison. Regardless of whether the writing operation is considered a write merging operation or a write collapsing operation, the described functionality merely writes the new data to the corresponding locations within the memory store, without any type of comparison.

Moreover, there would be no reason, within the context of Magro, to implement a comparison because there is no need for the results of such a comparison. Additionally, there is no explanation or reasoning to show how such comparison results might be used to influence or determine how the write data is written to the data store. Although the Advisory Action attempts to argue that a comparison would be inherent in determining whether to implement a write merging or a write collapsing operation, the teachings of Magro are insufficient to support this assertion because the determination of whether to

use write merging or write collapsing can be made without a comparison. For example, as explained in Applicants' previous response, the write merging and collapsing operations can be implemented simply be determining which bits are valid within each location in the data store, without regard for the actual content in each location. Hence, the determination of whether to use write merging or write collapsing merely depends on which data store locations have existing valid data and which data store locations do not have existing valid data. However, determining whether data locations have existing valid data does not inherently require the use of a comparison to compare data stored in each location with data to be written to certain locations. In other words, the write merging and write collapsing operations can be implemented without performing the type of comparison recited in the claim of the present application. Thus, the comparison is not an inherent part of the write merging and collapsing operations because the write merging and collapsing operations do not explicitly or necessarily require such comparison.

Furthermore, the language of the claim is amended to clarify that the comparison is used to determine if the first write data in the write request is different from second write data in the register. Hence, the language of the claim clarifies aspects of the comparison and, hence, the determination of valid bits within the data store is further insufficient to teach a comparison as recited in the claim.

Additionally, the language of the claim is amended to clarify that the first write data is forwarded to the register in response to a determination that the first write data is different from the second write data stored in the register. In this way, the first write data is not necessarily written to the register and, hence, may save processing time or other resource costs.

Therefore, the combination of Norman and Magro does not teach all of the limitations of the claim because Magro does not teach comparing first write data with second write data of an earlier write request in the register, or the other limitations recited in the claim. Accordingly, Applicants respectfully assert claim 1 is patentable over the combination of Norman and Magro because the combination of Norman and Magro does not teach all of the limitations of the claim.

Independent Claim 17

Applicants respectfully assert independent claim 17 is patentable over the combination of Norman and Magro at least for similar reasons to those stated above in regard to the rejection of independent claim 1. In particular, claim 17 recites "ascertaining whether said first address information is stored in said writing queue" and "if yes, comparing said first write data with second write data in said writing queue allocated to said first address information to determine if said first write data is different from said second write data, and forwarding said first write data to said writing queue in response to a determination that said first write data is different from said second write data" (emphasis added).

Here, although the language of claim 17 differs from the language of claim 1, and the scope of claim 17 should be interpreted independently of claim 1, Applicants respectfully assert that the remarks provided above in regard to the rejection of claim 1 also apply to the rejection of claim 17. Accordingly, Applicants respectfully assert claim 17 is patentable over the combination of Norman and Magro because Magro does not teach comparing first write data with second write data of an earlier write request in the register, or the other limitations recited in the claim.

Dependent Claims

Claims 2-15 and 18-25 depend from and incorporate all of the limitations of the corresponding independent claims 1 and 17. Applicants respectfully assert claims 2-15 and 18-25 are allowable based on allowable base claims. Additionally, each of claims 2-15 and 18-25 may be allowable for further reasons.

CONCLUSION

Applicants respectfully request reconsideration of the claims in view of the amendments and remarks made herein. A notice of allowance is earnestly solicited.

Petition is hereby made under 37 CFR 1.136(a) to extend the time for response to the Office Action of 06/21/08 to and through 07/21/08, comprising an extension of the shortened statutory period of one month.

At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account **50-3444** pursuant to 37 C.F.R. 1.25. Additionally, please charge any fees to Deposit Account **50-3444** under 37 C.F.R. 1.16, 1.17, 1.19, 1.20 and 1.21.

Respectfully submitted,

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